

In re of Appln. No. 09/529,172

IN THE CLAIMS

1 (Currently Amended). A genetically stable, transformed *Lemnaceae* plant and ~~progeny~~progeny thereof.

2 (Currently Amended). A transformed *Lemnaceae* plant according to Claim 1, of the ~~genus~~genus *Spirodela*, *Lemna* ~~and~~or *Wolffica*.

3 (Original). A transformed *Lemnaceae* plant according to Claim 2, being *Spirodela punctata* of strain 8717.

4 (Currently Amended). ~~An antibiotic resistant~~A transformed *Lemnaceae* plant according to any one of Claims 1 to 3, that is transformed so as to be antibiotic resistant.

5 (Original). A transformed *Lemnaceae* plant according to Claim 4, being resistant to kanamycin.

6 (Currently Amended). ~~A herbicide resistant~~A transformed *Lemnaceae* plant according to claim 1, that is transformed so as to be herbicide resistant.

7 (Currently Amended). A transformed *Lemnaceae* plant according to Claim 64, being that is transformed so as to be tolerant to oxynil herbicides, to glyphosphate and EPSPS inhibitor herbicides, to glufosinate or to HPPD inhibitors.

8 (Previously Amended). A transformed *Lemnaceae* plant according to claim 1, capable of expressing two or more foreign genes.

9-11 (Cancelled).

12 (Currently Amended). A method for the stable genetic transformation of *Lemnaceae* whole plants, plant tissue or callus, which comprises:

bringing the *Lemnaceae* whole plant, plant tissue or callus into contact with *Agrobacterium* cells containing a transforming DNA molecule; and

incubating the *Lemnaceae* whole plant, ~~plants and/or~~ plant tissue or callus with the *Agrobacterium* cells containing a ~~transforming DNA molecule~~, whereby cells in said whole plant, plant tissue or callus become stably transformed with said DNA.

13 (Original). A method according to Claim 12, wherein the *Agrobacterium* cells are capable of specifically targeting the plant's meristematic tissue.

14 (Currently Amended). A method according to Claim 13, wherein the *Agrobacterium* cells are *A. tumefaciens* ~~strains~~strains EHA105, EHA101 ~~and/or~~ GVE3103.

15 (Original). A method according to Claim 12, wherein the *Agrobacterium* cells are capable of targeting wounded regions in the plant.

16 (Currently Amended). A method according to Claim 15, wherein the *Agrobacterium* is *A. tumefaciens* strains LBA4404 ~~and/or~~ C58.

17 (Previously Amended). A method according to claim 12, wherein during the incubation of the *Lemnaceae* plant tissue with the *Agrobacterium* cells vacuum infiltration is applied.

18 (Original). A method according to Claim 12, wherein prior to incubation of the *Lemnaceae* plant tissue with the *Agrobacterium* cells the plant's meristematic zone is exposed by removal of the daughter fronds.

19 (Withdrawn). A method for the genetic transformation of a plant comprising:

cutting the plant into particles of a size such that they still contain undamaged meristematic tissue capable of developing into full plants;

incubating said particles with *Agrobacterium* cells containing transforming DNA molecules, whereby said transforming DNA is introduced into meristematic cells in said particles; and

producing transformed plants from the transformed meristematic tissue.

20 (Original). A method according to Claim 19, wherein the plant is a *Lemnaceae* plant.

21 (Currently Amended). A method according to Claim 19, wherein the particles have ~~an average diameter~~ diameters, the average of which is above-about 150  $\mu$ m.

22 (Currently Amended). A method according to Claim 21, wherein the particles have diameters, ~~an average diameter~~ the average of which is of about 150  $\mu\text{m}$  ~~to~~ about 750  $\mu\text{m}$ .

23 (Original). A method for the stable genetic transformation of a *Lemnaceae* plant comprising microinjecting *Agrobacterium* cells containing a transforming *Agrobacterium* DNA into the meristematic zone of the plant, whereby the meristemic tissue becomes stably transformed with said DNA.

24 (Original). A method according to Claim 23, carried out *in planta*.

25 (Original). A method for the *in planta* transformation of *Lemnaceae* plants comprising:

i. exposing the plant's meristematic zone by removal of the daughter fronds;

ii. incubating the plant with *Agrobacterium* cells capable of targeting to the meristemic tissue.

26 (Currently Amended). A method according to Claim 25, wherein the *Agrobacterium* cells are *A. tumefaciens* strains EHA105, EHA101 or ~~and~~ GVE3103.

27 (Currently Amended). A method according to claim 12, wherein the *Agrobacterium* cells are brought into contact, prior or during the transformation method, with a booster medium capable of enhancing the *Agrobacterium* cell's virulence, said booster medium comprising a fresh cell

suspension of dicotyledonous plants or comprising Lemnaceae plant extracts.

28 (Previously Amended). A method according to claim 12 wherein the transformation process takes place in a media having a pH below about 5.2.

29 (Currently Amended). A method according to Claim 2728, wherein the booster medium ~~further~~ comprises a fresh cell suspension obtained from a dicotyledonous plant.

30 (Currently Amended). A method according to claim 2928, wherein the fresh cell suspension is at a concentration of 1-10% (w/v).

31 (Currently Amended). A method according to claim 2728, further comprising caffeine at a concentration of 100-500 mg per liter of medium.

32 (Currently Amended). A method according to claim 2928, wherein the fresh cell suspension of a dicotyledonous plant is obtained from the family of *Solanaceae*.

33 (Currently Amended). A method according to claim 2726, wherein the booster medium is a plant culture medium having a pH of about 3.5 to 4.2, and comprising 1-10% (w/v) of fresh cell suspension of *Nicotiana tabacum* and 100-500 mg per liter of ~~medium~~ caffeine.

34 (Original). A method according to Claim 27, wherein the booster medium comprises a *Lemnaceae* plant extract.

35 (Original). A method according to Claim 34, wherein the *Lemnaceae* plant extracts are *Spirodela punctata* extracts.

36 (Original). A transformed *Lemnaceae* plant obtained by the method of any one of Claims 12 to 35.

37-53 (Cancelled).

54 (Currently Amended). A method of production of a product of interest, comprising growing a transformed *Lemnaceae* according to claim 1, ~~encoding~~encoding said product, in an appropriate culture medium, under conditions enabling the production of said product of interest.

55 (Original). The method as claimed in claim 54, wherein the product of interest is further isolated and purified.

56 (Previously Amended). A method as claimed in one of claims 54, wherein the product of interest is a chemical or a biological product.

57 (Original). A method as claimed in claim 56, wherein the product of interest is selected from the group consisting of polypeptides, proteins, carbohydrates, lipids, alkaloids, pigments or vitamins.

58 (Currently Amended). A method according to Claim 3435, wherein the *Lemnaceae* is *Spirodela*.

59-61 (Cancelled).

62 (Previously Added). A method according to Claim 20, wherein the particles have an average diameter above about 150  $\mu\text{m}$ .

63 (Currently Amended). A method according to Claim 62, wherein the particles have ~~an average diameter~~ diameters the average of which is about 150  $\mu\text{m}$  to about ~~[[ - ]]~~ 750  $\mu\text{m}$ .

64 (Cancelled).

65 (New). A method for the stable genetic transformation of *Lemnaceae* plant tissue, comprising:

inoculating *Lemnaceae* tissue with *Agrobacterium* containing a transforming DNA molecule having a heterologous DNA of interest; and

co-cultivating the tissue with the *Agrobacterium* to produce the stably transferred *Lemnaceae* tissue.

66 (New) A genetically stable *Lemnaceae* plant, comprising a heterologous DNA of interest integrated into the chromosome, wherein said plant is produced via an *Agrobacterium*-mediated method.

67 (New) A method of production of a product of interest, comprising:



culturing a stably transferred *Lemnaceae* plant that expresses at least one heterologous product; and

isolating and purifying said at least one heterologous product.